



Volunteer Lake Assessment Program Individual Lake Reports

CAPTAIN POND, SALEM, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	960	Max. Depth (m):	8.6	Flushing Rate (yr ⁻¹)	2.1
Surface Area (Ac.):	90	Mean Depth (m):	2.5	P Retention Coef:	0.65
Shore Length (m):	2,600	Volume (m ³):	874,000	Elevation (ft):	156

TROPHIC CLASSIFICATION

Year	Trophic class
1987	MESOTROPHIC
2002	MESOTROPHIC

KNOWN EXOTIC SPECIES

Variable Milfoil

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

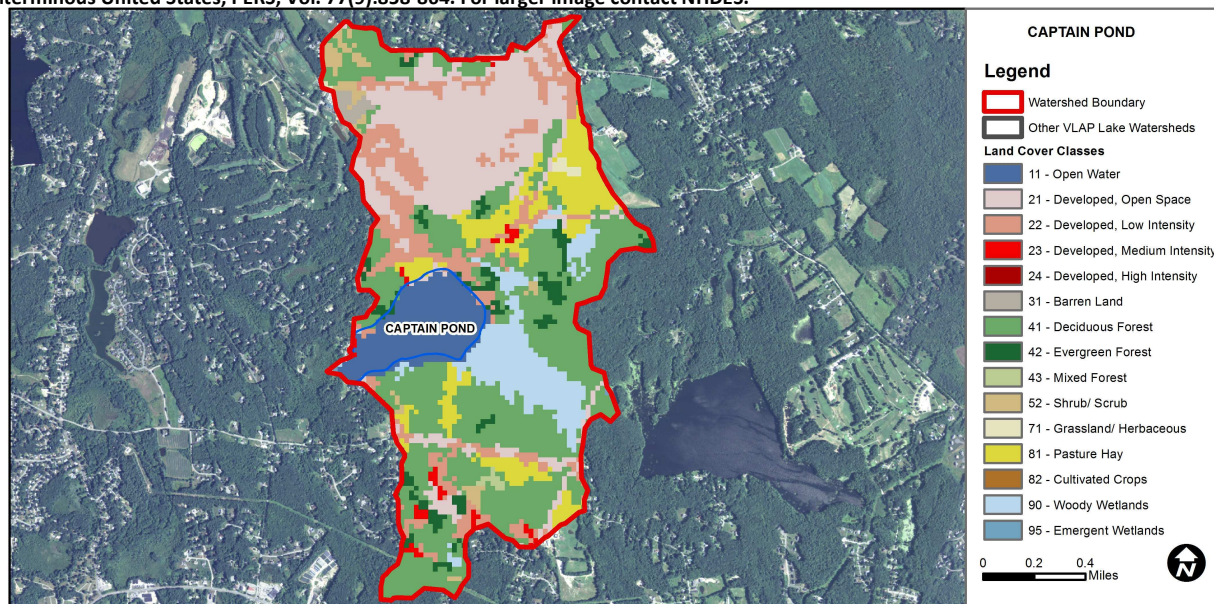
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Slightly Bad	>=5 samples and median is >threshold.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	D.O. (mg/L)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	D.O. (% sat)	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	Chlorophyll-a	Slightly Bad	>5 samples and median is > threshold.
Primary Contact Recreation	E. coli	Encouraging	>2 samples exist that are > 75% of geometric mean criteria, but not enough samples to calculate geometric mean. No single sample exceedances. More data needed.
	Chlorophyll-a	Good	At least 10 samples with 1 sample but < 10% of samples exceeding criteria.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

CAPTAIN POND - CAMP HADAR	E. coli	Bad	>=1 exceedance(s) of geometric mean criterion and/or >=2 exceedances of single sample criterion, with 1 or more >2X criteria.
CAPTAIN POND - GIRLS INC OF HAVERHILL BEACH	E. coli	Cautionary	One exceedance of single sample criteria but not enough data to calculate geometric mean. More data needed.
CAPTAIN POND - CAMP Y WOOD BEACH	E. coli	Good	Geometric means < criteria; however at least 1 exceedance of the single sample criteria occurred.
CAPTAIN POND - CAMP OTTER SWIM AREA BEACH	E. coli	Bad	>=1 exceedance(s) of geometric mean criterion and/or >=2 exceedances of single sample criterion, with 1 or more >2X criteria.
CAPTAIN POND - CAPTAIN'S BEACH	E. coli	Bad	>=1 exceedance(s) of geometric mean criterion and/or >=2 exceedances of single sample criterion, with 1 or more >2X criteria.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	7.86	Barren Land	0.72	Grassland/Herbaceous	0.35
Developed-Open Space	20.9	Deciduous Forest	34.62	Pasture Hay	9.1
Developed-Low Intensity	11.8	Evergreen Forest	3.53	Cultivated Crops	0
Developed-Medium Intensity	1.09	Mixed Forest	0.25	Woody Wetlands	8.07
Developed-High Intensity	0	Shrub-Scrub	1.75	Emergent Wetlands	0.08



VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

CAPTAINS POND, SALEM, NH

2013 DATA SUMMARY

OBSERVATIONS AND RECOMMENDATIONS (Refer to Table 1 and Historical Deep Spot Data Graphics)

- 🔥 **CHLOROPHYLL-A:** Chlorophyll levels were low on each sampling event, and 2013 average chlorophyll was less than the state median and the lowest measured since monitoring began. Historical trend analysis indicates highly variable chlorophyll between years.
- 🔥 **CONDUCTIVITY/CHLORIDE:** Deep spot, near shore and tributary conductivity and chloride levels were elevated on each sampling event and much greater than the state median. Historical trend analysis indicates significantly decreasing (improving) epilimnetic conductivity since monitoring began. We hope to see this continue!
- 🔥 **TOTAL PHOSPHORUS:** Deep spot phosphorus levels were above average for most NH lakes, however have remained at a lower level since decreasing in 2010. Historical trend analysis indicates stable epilimnetic phosphorus. Inlet, Outlet, Gallow, 42 Plaisted, and YMCA phosphorus levels were within average ranges for those stations. 30 Plaisted, Buzzell Cove and Boat Launch phosphorus levels were above average for those stations.
- 🔥 **TRANSPARENCY:** Transparency was slightly better measured with the viewscope than without and is likely a more accurate measurement. Historical trend analysis indicates relatively stable transparency with moderate variability between years.
- 🔥 **TURBIDITY:** Deep spot turbidity levels were slightly greater in August likely due to a slight increase in algal growth, however were still relatively low. 30 Plaisted Circle, Buzzell Cove and Boat Launch turbidity were elevated in June following a storm event. Gallow and Outlet turbidity were slightly elevated in August likely due to low water levels.
- 🔥 **pH:** pH levels were generally sufficient to support aquatic life, however decrease to critical levels in the hypolimnion. Historical trend analysis indicates relatively stable epilimnetic pH with high variability between years.
- 🔥 **RECOMMENDED ACTIONS:** Encourage local road agents and salt applicator companies to obtain an NH Voluntary Salt Applicator License through the UNH Technology Transfer Center's Green SnowPro Certification in hopes of continuing to reduce conductivity levels. Continue to educate lake residents on ways to reduce stormwater runoff from their properties and implement one or two stormwater management projects to highlight to their effectiveness. DES' "Homeowner's Guide to Stormwater Management" is a great resource.

Station Name	Alk.	Chlor-a	Chloride	Cond.	Total P	Trans.		Turb.	pH
	mg/l	ug/l	mg/l	uS/cm	ug/l	NVS	VS	ntu	
30 Plaisted Circle				192.2	45			2.42	7.37
42 Plaisted				192.4	16			1.44	6.98
7 Captains Dr			48	201.7	17			1.05	7.61
Boat Launch			49	189.7	21			3.16	7.15
Buzzell Cove				201.4	20			1.37	7.08
Gallow				200.9	15			1.30	7.14
Epilimnion	17.7	3.48	49	192.5	16	2.13	2.82	1.02	6.89
Hypolimnion				193.8	18			1.21	6.58
Inlet			49	200.8	15			0.92	6.77
Outlet				200.2	17			1.51	7.12
YMCA				190.1	23			1.95	6.88

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.

Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m³
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.

Chloride: < 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: 6.5-8.0 (unless naturally occurring)

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation	Parameter	Trend	Explanation
pH	Stable	Trend not significant; data highly variable.	Chlorophyll-a	Stable	Trend not significant; data highly variable.
Conductivity	Improving	Data significantly decreasing.	Transparency	Stable	Trend not significant; data moderately variable.
			Phosphorus (epilimnion)	Stable	Trend not significant; data show low variability.

